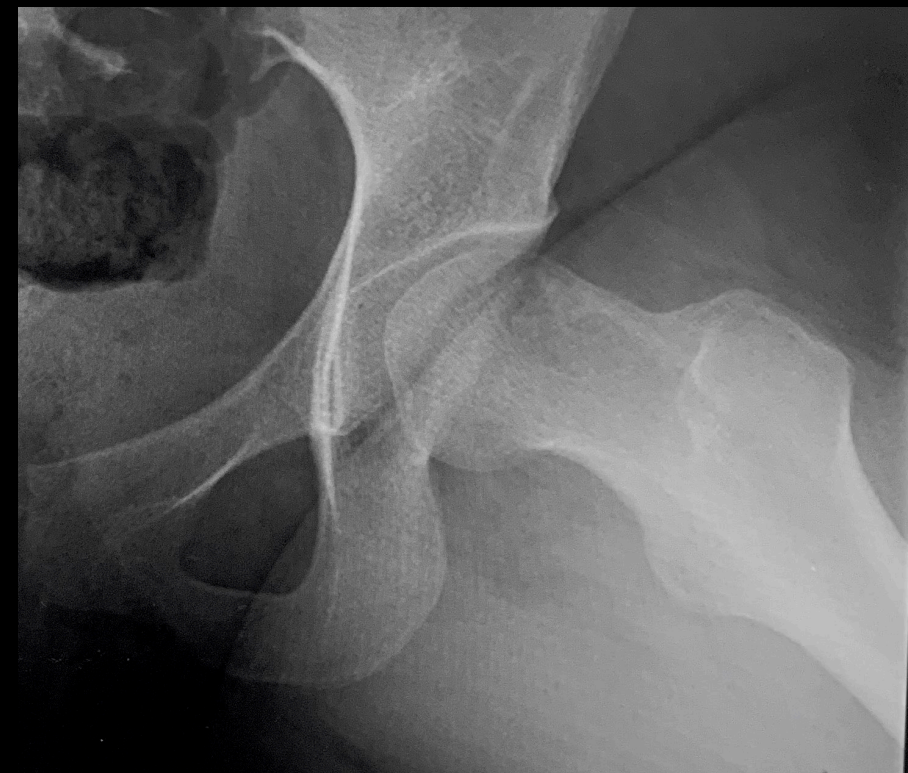


Effect of a femoral neck anteversion on the α angle using a 45 Dunn view

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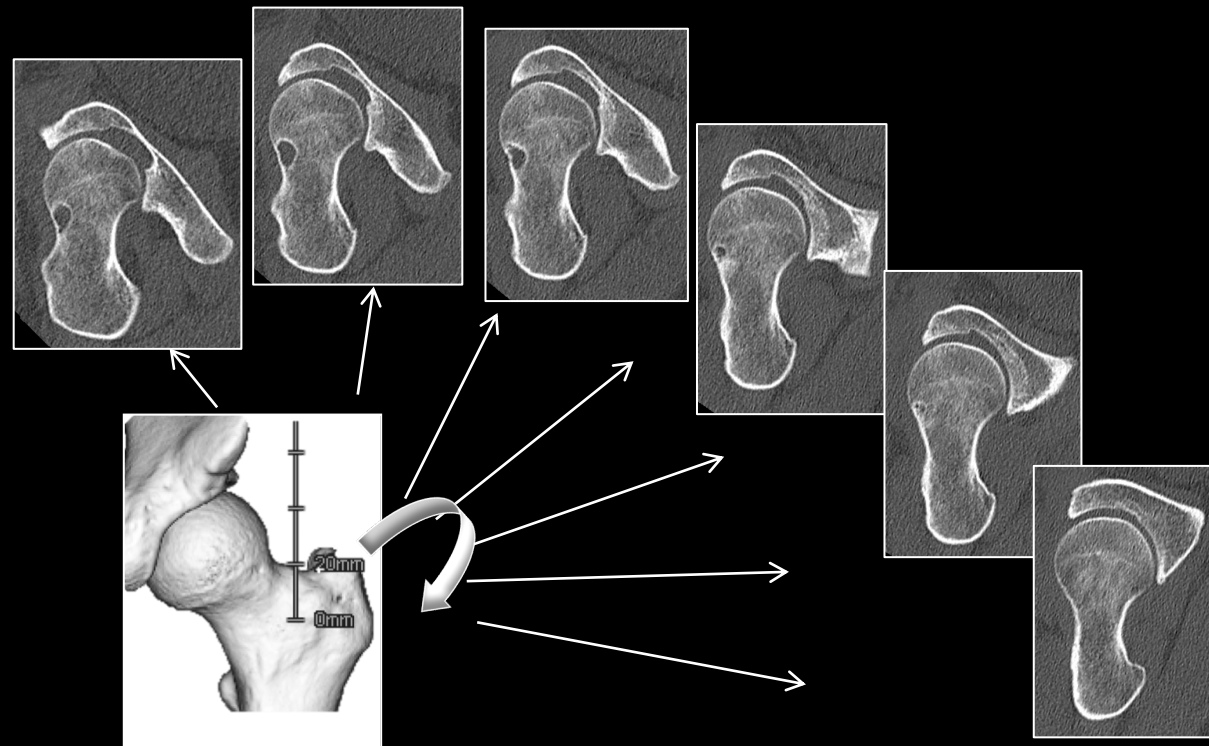


Introduction

The evaluation of a cam lesion

The maximum α angle of CT $> 50^\circ$

Michael D. J Radiol 2014



Radial CT

Limited medical institution

High radiation exposure

High cost

Not suitable for screening

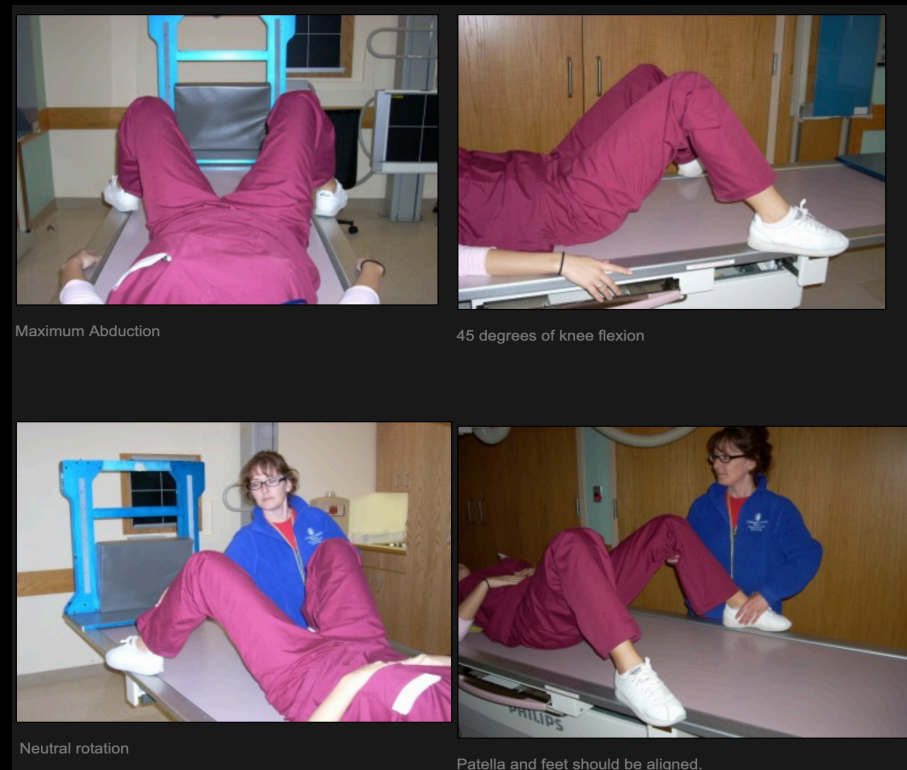
Introduction

45° Dunn view (45D)

Plain radiograph

Simple, Low radiation exposure and cost

Previous reports; approximated the α angle of CT



Domayer SE. European J Radiol 2011, Barton C. CORR 2011, Harris MD. European J Radiol 2014

However

Not consider the effect of a femoral neck anteversion

Introduction

Purpose

To clarify the influence of the femoral neck anteversion on the preoperative α angle of 45D.

Hypothesis

The α angle of 45D is less influence on the femoral neck anteversion.

Methods

Patients

2017 - 2018

✓ preoperative 45D and CT

38 hips treated with hip arthroscopy

All primary FAI correction

Mean age 35.4 (range 15.0-66.0) years

Male/Female 19/19 hips

anteversion $< 15^\circ$

$\geq 15^\circ$

low anteversion (group L)

high anteversion (group H)

n = 19

n = 19

Male/Female, hip

7 / 12

12 / 7

$P = 0.19$

age, years

34.0 (15.0-59.0)

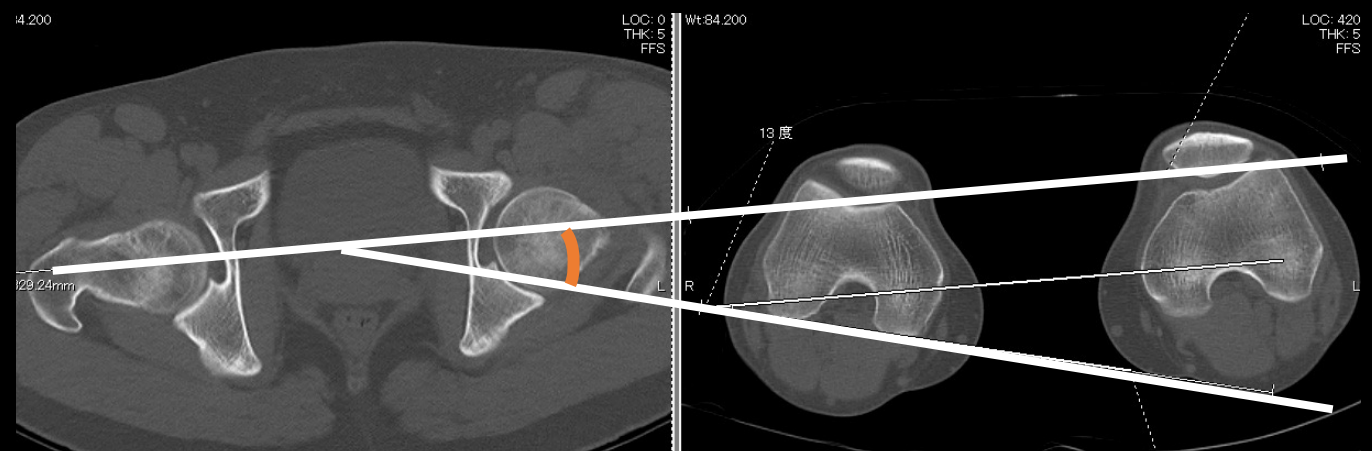
37.0 (15.0-66.0)

$P = 0.52$

mean (range)

Femoral neck anteversion

mean 14.5 (range -12.0 – 33.0)°

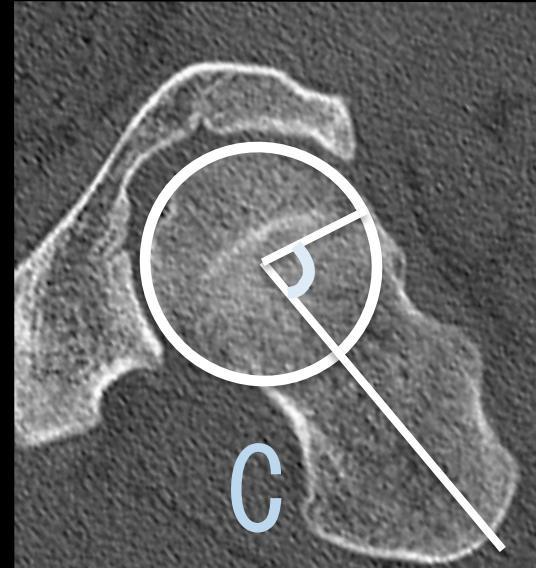
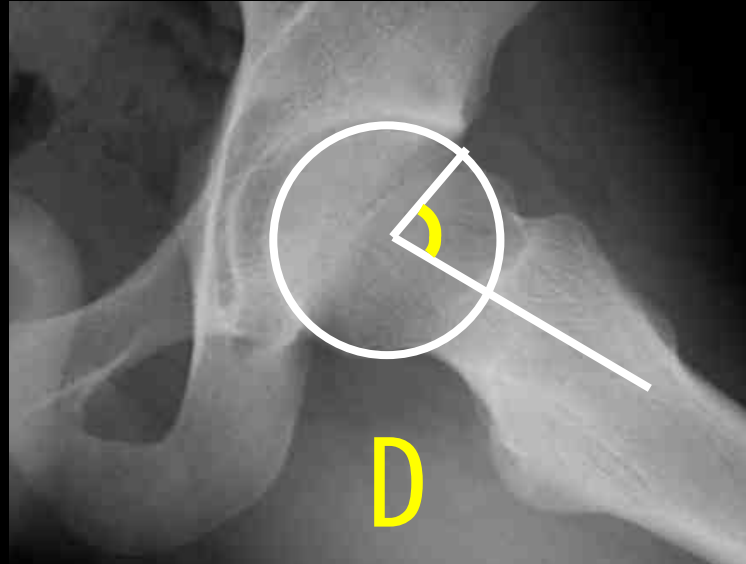


femoral neck anteversion by CT (normal 15°)

Tonnis D. JBJS 1999

Radiographic measurement

- α angle by 45D (**D**) and CT (**C**)
- D/C ratio (DCR)



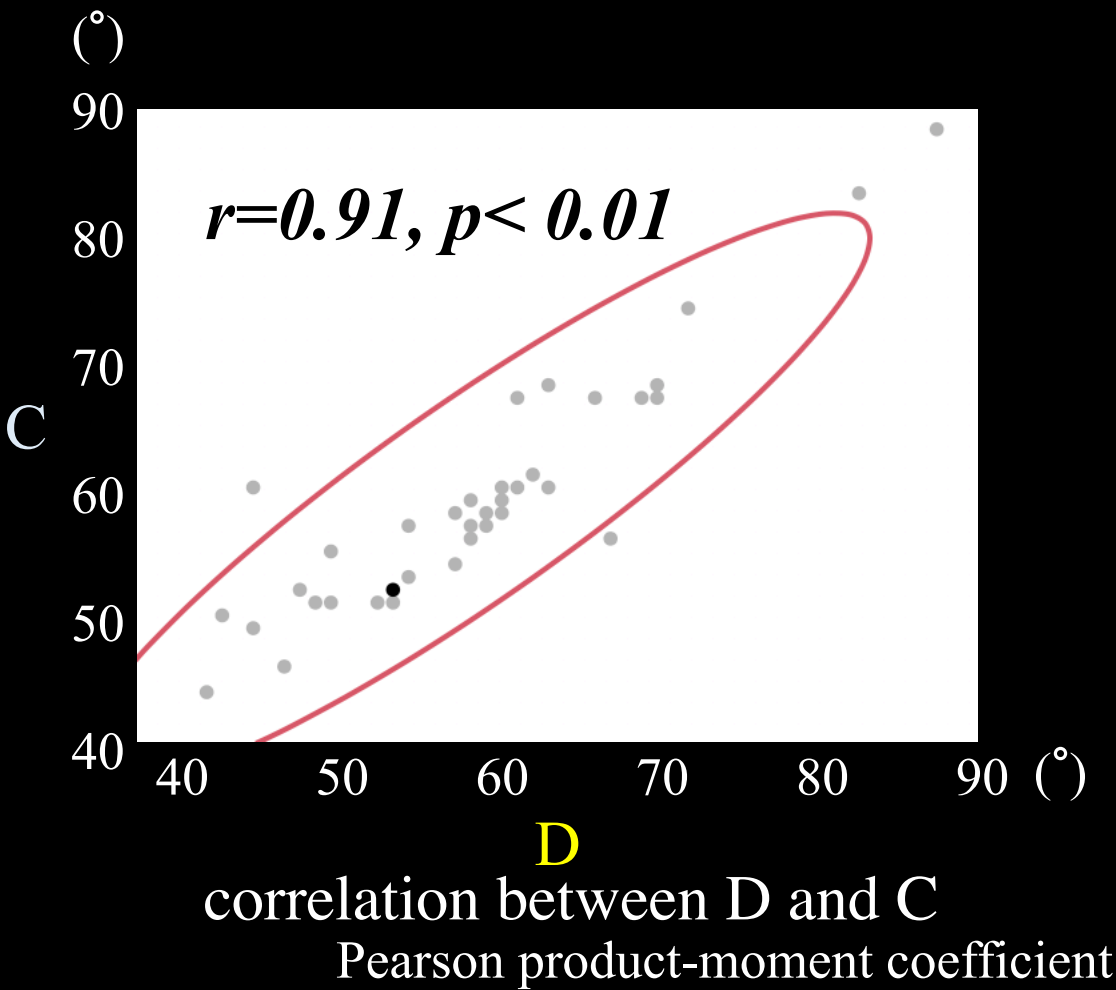
Evaluations

- ✓ DCR
- ✓ the range of 1.0 ± 0.1 of the DCR
- ✓ the α angle of 45D
between the groups

Results

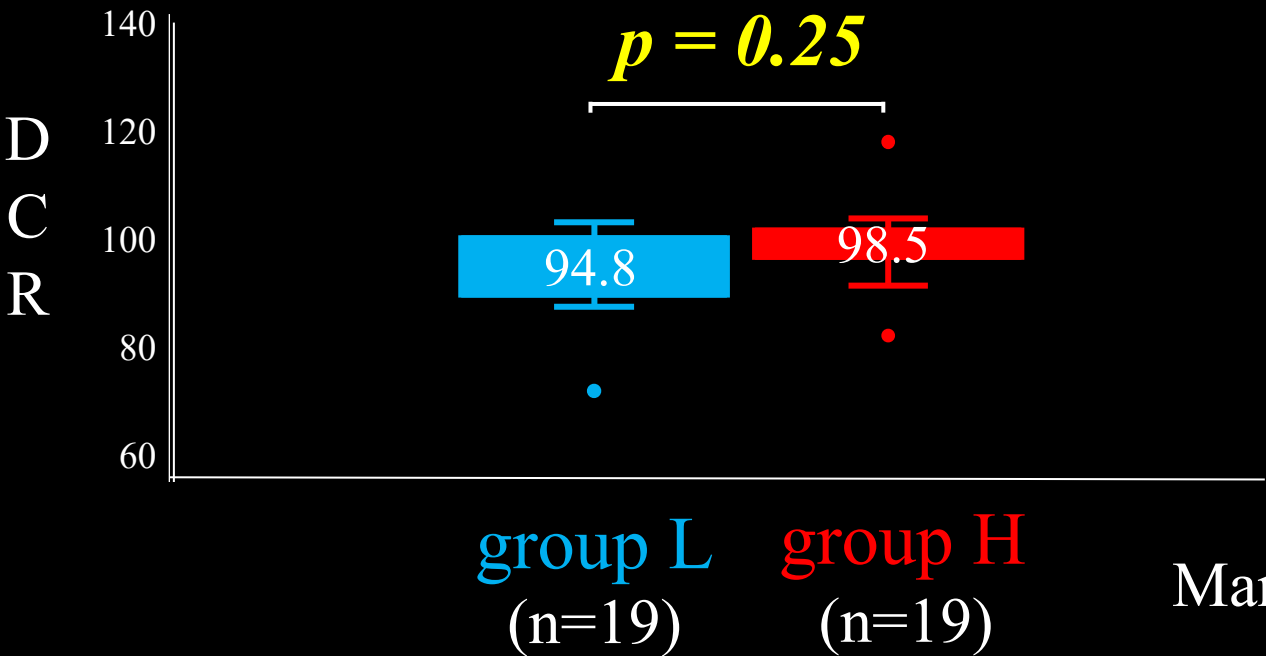
α angle

	α angle, °
45° Dunn view (D)	57 (40-87)
CT (C)	59 (44-88)
	Mean (range)



DCR

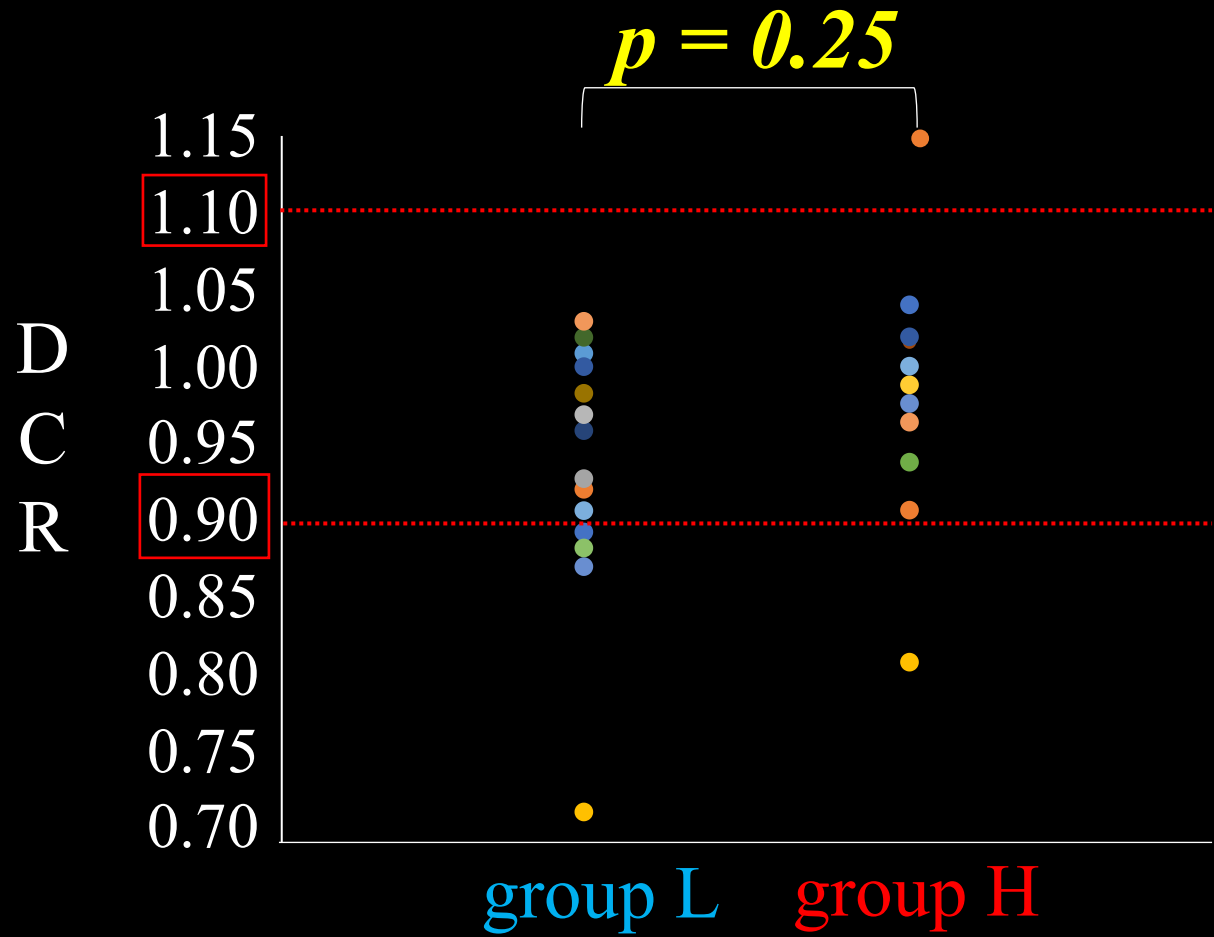
Mean 0.97 range (0.71–1.17)



Mann-Whitney U test

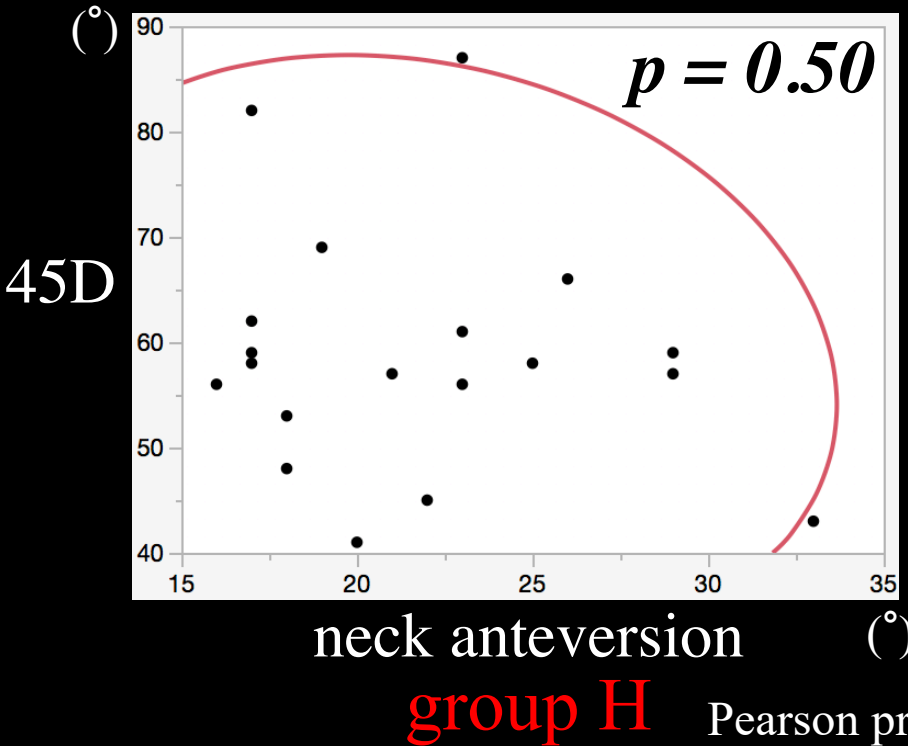
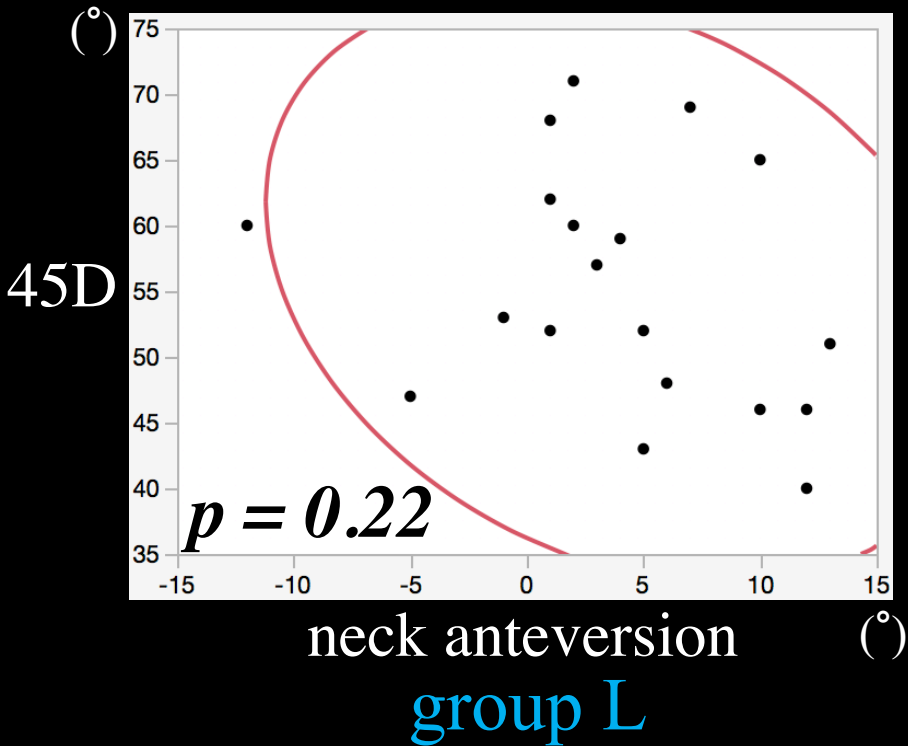
Results

10% Outlier



Outlier: group L 26.3%
H 15.8%

Correlation between the neck anteversion and 45D



Pearson product-moment coefficient

Brief summary

- ✓ There was a correlation between 45D and CT ($r=0.91$, $p<0.01$).
- ✓ The DCR and the range of 1.0 ± 0.1 were no significant difference between group L and H.
- ✓ There was no correlation between the femoral neck anteversion and the 45D in group L and H.

About 45° Dunn view

Previous reports: High correlation with CT or MRI

	r	
Domayer SE et al.	0.772	} Not consider the effect of a femoral neck anteversion
Barton C et al.	0.702	
Harris MD et al.	0.831	
<hr/>		
Current study	0.910	

European J Radiology 2011

CORR 2011

European J Radiology 2014

Our results suggested that ...

the α angle of 45D was less influence on the femoral neck anteversion.

Conclusions

We investigated the influence of the femoral neck anteversion on the α angle of 45D.

The α angle of 45D was less influence on the femoral neck anteversion.